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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/082,170	02/26/2002	Jonathan Samuel Dring	20272/0701	2312

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EXAMINER

HE, AMY

ART UNIT PAPER NUMBER

2858

DATE MAILED: 12/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/082,170

Applicant(s)

DRING ET AL.

Examiner

Amy He

Art Unit

2858

MW

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 September 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## DETAILED ACTION

### *Specification*

1. The proposed correction to the abstract is missing. The abstract is objected to because the following informalities:

- (1) Delete the redundant word "models" (line 2). Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Al-Dabbagh (U. S. Patent No. 5, 602, 709).

Referring to claims 1-3, 8-9, 19, and 22-23, Al-Dabbagh discloses a system (34 in Figures 4 and 5) for detecting arc faults in an electrical circuit (column 8, lines 41-60), wherein the system comprises: a store of a plurality of temporal models (stored in RAM memory 60, column 9, lines 42-47; or pattern storage memory, column 10, lines 41-52) gathered over time periods of electrical events associated with arc faults and of events not associated with arc faults (pre-stored standard pattern data and/or pattern data obtained, column 15, line 7-9); an interconnection means (current and voltage monitoring circuit 20 and 22 in Figure 3) for extracting from said circuit electrical signals associated with electrical events in said circuit; a processor or means (digital processing

circuitry 28 in Figure 4; also see microprocessor 30 with the artificial intelligent software and setting input as shown in Figure 5 or CPU 98 with 94 as shown in Figure 11) for processing the signal into a form suitable for comparison with said models; and a comparator or means (column 4, lines 54-59) for comparing the processed signals with said models to determine whether the event giving rise to said signals is an arc fault or not.

Referring to claim 4, Al-Dabbagh discloses a circuit breaker, and wherein said system is arranged to open said circuit breaker when an arc fault is detected (column 9, lines 63-65).

Referring to claims 5-6, Al-Dabbagh discloses that said temporal model are in the form of templates or stochastic models (column 3, lines 43-55).

Referring to claims 7 and 20-21, Al-Dabbagh discloses an artificial neural net (microprocessor 30 with the artificial intelligent as shown in Figure 5 or CPU 98 with 94 as shown in Figure 11) programmed to recognize features of different arcs so as to enable arcs caused by faults in said circuit to be distinguished from other arcs (column 20, lines 6-12); an interconnection (current and voltage monitoring circuit 20 and 22 in Figure 3) for extracting from said circuit, current and/ voltage signals associated with electrical events in said circuit.

Referring to claims 10-18 and 24, they are the method claims corresponding to the system claims 1-9. They are rejected for the same reasons as stated above for the rejection of the system claims.

***Response to Arguments***

3. Applicant's arguments filed September 23, 2003 have been fully considered but they are not persuasive.

Referring to applicant's arguments that "the data obtained by AI-Dabbagh...do not describe a temporal model or template of arc characteristics", note that the arguments amount to a general allegation without specifically pointing out how the language of the claims patentably distinguishes them from the cited references. Since "a temporal model " is only specified as "arc events...in the form of templates...can contain any number of electrical, mathematical or spectral features, such as accumulated differential of voltage and/or current and a high frequency spectrum..." (See specification, page 4, third paragraph), the template models of AI-Dabbagh meet the claimed limitation. Specifically, AI-Dabbagh discloses temporal models of arc events in the form of templates (column 3, lines 43-55), containing voltage and/current data and frequency components (column 9-column 10).

Referring to applicant's arguments that "the microprocessor of AI-Dabbagh is not a neural net ", the examiner assert that the microprocessor 30 is a neural net since it uses the artificial intelligent software (See Figures 5 and 11) and follows a process of pattern forming, recognition and pattern analysis to detect high impedance fault (column 10, lines 17-63).

***Conclusion***


4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amy He whose telephone number is (703) 305-3360. The examiner can normally be reached on 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, N. Le can be reached on 703-308-0750. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4900.

  
AH  
December 4, 2003

  
N. Le  
Supervisory Patent Examiner  
Technology Center 2800